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10/501,618	07/14/2004	John Herbert North	920602-97104	2227

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EXAMINER	
CLEMENTE, ROBERT ARTHUR	
ART UNIT	**PAPER NUMBER**
1724	

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/501,618	NORTH, JOHN HERBERT	
	Examiner	Art Unit	
	Robert A. Clemente	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23 - 41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23 - 33, 35, 36, 38, 40, and 41* is/are rejected.

7)☒ Claim(s) *34,37 and 39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. If applicant desires to claim the benefit of a prior-filed application under 35 U.S.C. 119(a) – (d), a specific reference to the prior-filed application in compliance with 37 CFR 1.78(a) must be included in the first sentence(s) of the specification following the title or in an application data sheet. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications.

If the instant application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable

petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Specification

2. The abstract of the disclosure is objected to because it exceeds 150 words in length and therefore is not in compliance with 37 CFR 1.72(b). Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities: On page 2, in the ninth line of the first paragraph, the phrase "the differential pressure acting on the creates" has a word missing. The examiner's understanding is that the phrase should read, --the differential pressure acting on the closure creates--. Additionally, in the last paragraph of page 5, "the push fit of 28 onto 26" should be --the push fit of 28 onto 27--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 23 – 26, 30, 35, 36, 38 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 6,231,649 to Dyson.

In regard to claim 23, Dyson teaches a particle separation apparatus comprising inlet means by which particle laden air is drawn into the apparatus, a cyclone particle separating means into which the particle laden air is drawn, a particle collecting chamber, a suction fan driven by an electric motor for drawing air through the

apparatus, and a passage from the chamber to the fan, wherein the improvement comprises an opening in the passage upstream of the suction fan driving motor and downstream of the cyclone particle separating means, an air inlet and a valve between the air inlet and the opening which includes a valve closure and a valve seating against which the closure is normally resiliently urged to close the valve and prevent air flowing through the valve into the passage between the cyclone particle separating means and the fan, so that air pressure within the passage acts on one side of the closure while the other side of the closure is exposed to ambient air pressure, whereby in use if the air pressure in the passage leading from the cyclone particle separating means to the fan falls below ambient a pressure differential acts on the closure and creates a force which if the pressure differential is sufficient overcomes the resilient force acting thereon and the closure will become displaced from the seating and allow air to enter the passage and pass directly to the fan and fan motor to maintain an air flow to and around the fan motor. See figures 2, 3 and 3a, and respective portions of the specification. Figure shows the elements of the particle separation apparatus. The nozzle (12), or inlet, is where the particle air is drawn in. The separating means consists of cyclones (16A, 16B), which are disposed in a chamber to collect the particles. The suction is created by the fan (22) and the motor (24). The line (38) connects an opening, located upstream of the fan and downstream of the cyclones, to a bleed, or air inlet, valve (30). Figures 3 and 3a show the details of the valve. The valve head portion (82), or closure, sits against the seal (78), and normally resiliently held there by a spring (90). In figure 3, the left side of the head portion is exposed to ambient pressure and the right side is

exposed to the pressure in the passage between the cyclone and the fan. In column 6, lines 7 – 22, it is disclosed how the pressure differential overcomes the resilient force to allow air into the passage.

In regard to claim 24, Dyson further teaches using a resiliently deformable member on the side of the closure to generate the resilient force. The helical spring (90) is a resiliently deformable member, and as seen in figure 3 acts on the side of the head portion (82), or closure, to force it towards its closed position.

In regard to claim 25, Dyson teaches further locating the closure in a hollow housing, with a resiliently deformable spring means that acts between the closure and one end of the housing, and an opening in an opposite end of the housing defining the valve seating, which has an opening with an area smaller than that of the closure. The head portion (82) is located within a hollow housing (52, 76A and 76B). The spring (90) is shown to act between the head portion and the side of the housing. As seen in figure 3, the head portion has an area that is larger than the seating (78).

In regard to claim 26 and 35, the elements are the same as those in claim 25 except for the addition an elongate guide, which extends from the closure, a further opening in the said one end of the housing within which the guide is a sliding fit, and an additional opening to communicate between the interior of the housing and the passage. Dyson shows a rod (66), or guide, which extends from the head portion and slidingly fits in the central aperture (64), or opening, in the housing. Dyson also shows an additional opening, or port (58), that communicates between the housing and the

passage, from the cyclone to the fan, through which ambient air can pass when the head portion moves away from the valve seating.

In regard to claim 30, Dyson teaches the seating comprising of a resiliently deformable material that creates an airtight seal when the closure is pressed against it. In column 5 lines 21 – 23, the seal is disclosed to be flexible, or resiliently deformable, and that it facilitates airtight sealing.

In regards to claim 36, all of the elements of the claim have been discussed previously except for the housing being formed from two cylindrical parts, one part having an end wall containing an opening defining the valve seating and its other end is open, and the other part having an end wall containing an opening which communicates with the said passage and its other end is open, and the two open ends of the two parts are adapted to be joined the one to the other, so that the two parts extend coaxially to form the said housing. Dyson shows a housing formed from two cylindrical parts (76A and 76B, 52). One part (76A and B) has an end wall containing the opening with the valve seating (78). The other part has an opening (58), which communicates with the passage between the cyclone and the fan. The two parts are joined together coaxially to form the housing.

In regard to claim 38, the majority of the elements have been discussed previously. For the new elements, figure 2 of Dyson shows a passage (no numbered) between the dust collector with the cyclone (16) and the fan (20). Also shown is a line (38), which extends from a port in the wall of the passage between the cyclone and the

fan to the housing of the valve. The opening (58) in the housing connects to the line (38) and enables airflow between the housing and the passage.

In regard to claim 40, all of the elements have been discussed above in reference to other claims and have been shown to be taught by Dyson.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 27, 31, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyson in view of US Patent No. 4,320,696 to Daniels et al.

Dyson is discussed above in paragraph 5. Dyson does not disclose using a hollow ball as the closure member of the valve. Daniels et al. discloses an air outlet with a valve using a hollow ball. Any device using a hollow ball for the closure inherently has a curved surface for sealing against the seating. Figures 1a, 1b, and 1c show the valve

with the ball (5) in various operating positions. It was disclosed earlier in column 3 lines 20 – 21 that the ball is hollow.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dyson to include a valve closure with the shape of a hollow ball in order to provide an alternative shape that would work effectively for sealing.

In regard to claim 41, all of the elements besides using the hollow ball for the closure are taught by the primary reference and discussed above in paragraph 5.

9. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dyson in view of US Patent No. 5,623,958 to Bumpers.

Dyson is discussed above in paragraph 5. Dyson does not disclose a closure with a conical surface for contacting and sealing against the seating. Bumpers discloses a low-pressure relief valve that has a conical closure in one embodiment. Bumpers shows the conical closure (205) in figure 12.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dyson to include a closure with a conical surface as suggested by Bumpers in order to provide an alternative shape for the closure.

10. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dyson in view of US Patent No. 5,004,009 to Bunce.

Dyson is discussed above in paragraph 5. Dyson does not disclose a closure with a frusto- conical surface for contacting and sealing against the seating. Bunce discloses a liquid flow valve that uses a frusto-conical closure. See figure 1 and the description in column 5 line 44.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dyson to include a closure with a frusto-conical surface as suggested by Bunce in order to provide an alternative shape for the closure.

11. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyson and Daniels et al. as applied to claims 27, 31, and 41 above, and further in view of US Patent No. 5,183,075 to Stein.

Dyson and Daniels et al. are discussed above in paragraph 8. Dyson and Daniels do not teach a hollow ball closure in which the ball is made from a plastic or that the ball has at least one opening so that the pressure within the ball is the same as the pressure within the housing. Stein discloses a check valve with a spherically shaped closure (3), best illustrated in figure 3. The closure is shown to be open inside where the spring is and to have connecting ducts (18) allowing passage of a fluid through the closure. Being that the ball is open to the housing it is inherent that it will have to same pressure as the housing. In regard to the closure being made of plastic, it was disclosed by Stein in column 3 line 10 that one embodiment of the invention includes a plastic ball.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dyson and Daniels et al. to include a plastic ball with openings to the housing as suggested by Stein in order to use an inexpensive closure that will not be under any additional stresses due to pressure differences in the ball and housing.

Allowable Subject Matter

12. Claims 34, 37, and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is an examiner's statement of reasons for allowance: The examiner did not find any prior art that teaches or suggests using a hollow elongated rod extending from the closure with air allowed to flow through it as a guide for the valve.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Restemeier discloses a vacuum cleaner with a bleed valve to allow air to the motor when the filter is clogged.

Choi discloses a valve for automatic shutoff of a vacuum cleaner using the pressure differential.

Fromknecht et al. discloses an indicator for a vacuum cleaner that shows when there is a clog.

Kazama et al. discloses a ball valve using a spring to make a resilient seal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Clemente whose telephone number is (571) 272-1476. The examiner can normally be reached on M-F, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Smith Duane can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert A Clemente
Examiner
Art Unit 1724

RAC

DUANE SMITH
PRIMARY EXAMINER
8-29-06